

**ABUNDANCE AND PATTERNS OF OCCURENCE IN BUTTERFLIES FROM AILSA CRAIG,
AYRSHIRE**

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ABSTRACT

21 species of butterflies have been reported from Ailsa Craig. 5 breed regularly and 12 are sporadic in their appearance on the island. Two or three species records are considered dubious. All records following are fully documented.

INTRODUCTION

The flora of Ailsa Craig is now relatively well known (Zonfrillo, 1994) but its butterflies have received little attention for over half a century. There are apparently no systematic collections from the past and only scattered observations have been committed to print (Scott, 1899; Smith et al., 1900; Gibson, 1952, 1976.) with some of these records requiring corroboration. Vegetation cover on the island had probably not altered drastically during the first half of the 20th century. It was largely grazed in all the places accessible to grazing mammals. Until the late 1950's feral goats, sheep, Soay sheep, ponies and donkeys were the main herbivores on Ailsa Craig with all but the former belonging to those who made their living on the island as hewers of granite and part-time crofters. Add to that innumerable alien rabbits and rats and what was left of the natural non-grazed vegetation, suitable for many butterflies, was largely confined to inaccessible cliff ledges. Plant life over much of the island was in consequence much degraded and constantly suppressed through the action of these grazing herbivores. Human and mammalian activities on Ailsa therefore indirectly affected the abundance and species of the butterflies breeding on the island. During the early 1960's all domestic mammals plus feral goats were removed and in 1991 Brown Rats were totally eradicated by poisoning (Zonfrillo, 2002). This activity also reduced greatly the numbers of Rabbits on the island, but was temporary and the Rabbits soon regained their former population levels. In 2003 Rabbit numbers were again reduced – this time by disease, but it remains to be seen if any will survive and flourish (Zonfrillo *et al.*, 2003). Partly caused by herbivore grazing it is evident therefore that even short-term changes in the flora have probably contributed to the presence and abundance of certain butterflies on Ailsa Craig. Gardening by lighthouse keepers, before automation, may also have added variety to the local flora and been a source of food for some butterflies.

Migrant and resident species, normally confined to the mainland or other Clyde islands, usually reach Ailsa following periods of prolonged strong winds.

Though this could happen perhaps on an annual basis, certain wind-drifted migrants seem to have difficulty becoming established on the island, even when their food-plants are present and abundant. The persistent strong winds that blow over Ailsa may inhibit some species establishing themselves on an otherwise exposed island and salt spray may render many plants inedible to their caterpillars. The presence of breeding Rock and Meadow Pipits on Ailsa, inveterate caterpillar eaters, may also play a part in the absence or presence of certain butterflies.

There appears to have been no systematic collection of butterflies from Ailsa Craig during the 20th century. From the 1960's onwards, visiting entomologists have helped build up a picture of butterfly species present on the island but perhaps more importantly, their records have been published or voucher specimens preserved for posterity. In recent years all the Lepidoptera – butterflies and moths - of Ailsa Craig has been recorded in greater detail than ever before, building an impressive list of species present, of which the butterflies here recorded form a small part.

Those who have contributed observations to this paper along with the authors are as follows. Thomas Daniels,(TPD), Dr Mike V Housome (MVH) the late Ian Christie, (IC), Keith Bland (KPB) Shona Quinn, (SQ), Steven Zonfrillo (SZ), Robyn Anne Stewart (RAS), Dr Sarah Wanless (SW), Alistair Young (AY) and the late F Gerald Rodway (FGR). We are grateful for their records and fieldwork.

RESULTS

List of Butterfly species recorded from Ailsa Craig.

*An asterisk denotes a breeding record. The names follow the Bradley (2000) checklist.

***Erynnis tages* (Linn.)**

Dingy Skipper

While on a Glasgow Naturalist's day visit to the island the late F G Rodway disturbed a Dingy Skipper on the south path on 6 June 1976. This was the first record for Ailsa of a species that is generally rare in Scotland but occurs locally on the south Ayrshire coast. There are no further records to date.

Observer; FGR

***Colias croceus* (Geoffroy)**

Clouded Yellow

On 17 May 1992 BZ recorded the first two individuals of this species during an influx of migrant Lepidoptera including several Painted Ladies and 4 Hummingbird Hawk Moths. The

Clouded Yellows were seen almost daily thereafter until 19 August 1992 with several records of up to 3 individuals at one time. On 30 September 2000, during another smaller influx, a male and a female were recorded. Sutcliffe (1994) summarised all the Scottish records of this species recorded during the major influx in 1992.
Observers ; BZ, MVH & TPD.

***Pieris brassicae* (Linn.)**

***Large White**

This is listed by Smith *et al.* (1900). The Large White fluctuates in numbers annually on Ailsa Craig. Their numbers may depend on climatic factors and the abundance of the Sea Radish *Raphanus raphanistrum* ssp. *maritimus* plants growing mainly on the south side of the island. In some years, for example in May 1990, up to 200 individuals were counted. In other years they can be scarce with only a peak of 10 individuals recorded, as in May 1991. Recent counts include 47 on 8 Aug 2001. In all of August 2002 a maximum of 3 was counted. The earliest date for this species seen on the wing is 7 May 2000. It breeds on the island feeding mainly on the Sea Radish.

Observers; BZ, TPD, SQ & SZ.

***Pieris rapae* (Linn.)**

***Small White**

By no means ever as abundant as the Large White, Small Whites are seen in small numbers in most years. The largest count was of 17 in May 1993. This species may also feed on Sea Radish, the only common Brassicacea on the island, that fluctuates in numbers from year to year, and therefore will sometimes be in direct competition with Large White.

Observers ; BZ /TPD

***Pieris napi* (Linn.)**

***Green-veined White**

This species appears regularly each year in small numbers of up to 20 individuals. Most records are in July & August, when they are on the wing. It is not uncommon and seems to suffer less from windy weather than the other two whites being better adapted to the frequently strong winds.

Observers ; BZ, TPD, SQ & RAS.

***Callophrys rubi* (Linn.)**

Green Hairstreak

One specimen was caught on 1 May 1990, at the south cottage following strong southerly winds and warm temperatures. Specimen in Glasgow Museum [Reg. No DB.7547]. It occurs on the mainland coasts within sight of the island. This appears to be the first Ailsa record.

Observers ; BZ

***Lycaena phlaeas* (Linn.)**

Small Copper

In recent years only one specimen has been seen, on 19 Jul 1984. Always scarce, this species appeared mainly in the old garden areas associated with the lighthouse, where Common Dock grew. Now overtaken by Bracken the dock is scarce in these areas and this species has failed to appear in most of the past decades. K. Bland recorded it on a day

visit in the 1980's and Gibson (1952) states that it "occurs from time to time".

Observers ; BZ & KPB

[*Aricia agestis* (Denis & Shiffermüller)

Brown Argus]

This is a dubious record for Ailsa Craig hence placed in square brackets. Gibson (1952) recorded this species, "a few each year around the Castle Flat, c.400ft". Thomson (1980) suggested all reports of this species in Scotland, including this record, refer to the Northern Brown Argus. There are no other records from visiting entomologists before or since then, in what would have been a notable location. The species - regarded as distinct from 1958 onwards - does not occur in Scotland and the nearest breeding records are on the west side of Britain in north Wales. The food plant of the more likely Northern Brown Argus, *Aricia artaxerxes*, a different but easily distinguished species, is the Rockrose *Helianthemum*, found on the Ayrshire coast opposite Ailsa Craig. However this plant has never been recorded from the island hence even migrants are unlikely to reproduce.

***Polyommatus icarus* (Rotttemberg)**

***Common blue**

There are enough records of this species on the island over the years to suggest that with the right food plants in abundance it will breed. Gibson (1952) stated that it was fairly common but just over 20 years later this was not the case. Wanless (in litt) recorded it on 21 Jun 1974 and again on 8 Jul 1976 until the end of that month.

The abundance of this species appears related to the abundance of Bird's foot Trefoil *Lotus corniculatus* and White Clover *Trifolium repens*. When rabbit numbers were reduced in 1991 these plants became abundant and shortly thereafter, from 7 - 29 Jul 1994 the Common Blue was present every day on the island, 1 male on 7 Jul 1994 and up to 3 males by 3 Jul 1995 A voucher specimen is lodged with Glasgow Museum [Reg. No DB.7548]. These clearly became established and up to 15 individuals, of both sexes, were recorded on 25 Jul 1997. By 1998 rabbits were again expanding their numbers and grazing out the *Lotus* and *Trifolium* with only 3 Common Blues recorded in 1999 and 1 on 22 Jun 2000. None was recorded in 2001 or in 2002. With the decline in rabbits during 2003, the species re-appeared with the increase in *Lotus* and will hopefully re-establish itself as part of the island's fauna.

Observers ; BZ, SW, SQ & TPD,

***Vanessa atalanta* (Linn.)**

*** Red Admiral**

This is a very regular summer and autumn migrant to Ailsa with breeding recorded in 1989: from 2 pupae, imago emerged on 8 Aug 1989 (Zonfrillo, 1990) and a specimen is in Glasgow Museum [Reg. No DB.7549]. A probable over-wintering individual was seen on 21 Apr 1987 and another spring record was seen at Garry Loch on 30 May

1994. The species is usually seen in summer and autumn in small numbers of less than 10 records per annum, but in 2002 some 30 to 40 individuals were observed during August.
Observers ; BZ, TPD, MVH & RAS

***Vanessa cardui* (Linn.)** *Painted Lady
This butterfly is a migrant visitor to Ailsa Craig, and is somewhat sporadic. It appears most years as a spring or late summer migrant but may sometimes be unrecorded. Gibson (1952) recorded one in July 1947. Three were recorded on 22 May 1992 and again in 1994. In June 1996 some females had laid eggs on Creeping Thistle plants at the Gashouse wall. Caterpillars were subsequently seen in August 1996. In August 2002 some 12 individuals were present during an influx. In 2003 it was common in autumn with up to 10 seen in one day.
Observers ; BZ, TPD, RAS

***Aglais urticae* (Linn.)** *Small Tortoiseshell
Listed firstly by Smith *et al.* (1900), this is a common and regular breeding species on the island. Hibernating individuals are common in the old buildings on Ailsa and larvae feed on the abundant Stinging Nettles. It is probably the only butterfly to have been recorded alive in every month of the year on Ailsa Craig. Active flying has been noted from February onwards until November. It over-winters in buildings and cliff crevices and on warm days these specimens can be active. Up to 60 individuals have been counted in summer in one day.
Observers ; BZ, TPD, SQ, RAS

***Inachis io* (Linn.)** *Peacock
The Peacock butterfly is a somewhat irregular visitor to Ailsa with most records occurring in spring and summer. Gibson (1952) first recorded the species in August 1948 and in September 1949. Wanless (*in litt.*) recorded it on 27 Mar 1974. Larvae were recorded on 16 June 1984. Recent spring records were from 9 May onwards until late October 2000. It was common in 2001, with up to 8 individuals seen. 20 Peacocks were counted in May and 12 in August 2002. In July 2003 it was again numerous.
Observers ; BZ, TPD, SZ.

***Boloria selene* (Denis & Shiffermüller)**
Small Pearl-bordered Fritillary
One example was recorded on 29 Jun 1984. Both Dog Violet *Viola riviniana* and Marsh Violet *Viola palustris*, the food-plants, occur on Ailsa, the former in abundance, but the species appears to have remained absent apart from this single record – presumably a wind-drifted migrant.
Observer ; A Y.

***Argynnis aglaja* (Linn.)** **Dark Green Fritillary**
Gibson (1952) recorded this species (August 1948, one specimen), presumably a wind-drifted migrant. There are no further records.

***Erebia aethiops* (Esper)** **Scotch Argus**
There is one record only for Ailsa Craig. During a day of strong northerly winds a single Scotch Argus was seen on thistles at the Gashouse on 8 Aug 2001. It flew off strongly when disturbed and was not seen again. In all probability it may have been wind-drifted from Arran. Asher *et al.* (2001) mention mark-recapture studies of this species where maximum movements recorded were 100 metres in England and 500 metres in Switzerland. At 15 kilometres from the nearest land, Ailsa Craig shows these recorded movements and measurements to be somewhat conservative.
Observers; BZ, SZ

***Hipparchia semele* (Linn.)** **Grayling**
Gibson (1952) recorded this species, - “three records; all west cliffs.” and later (Gibson, 1977), claimed a gradual increase since 1972 and added a record of 12 at one time in 1976. However, in June 1976 four experienced lepidopterists also visited Ailsa Craig and failed to record the species anywhere on the island. If the twelve together were an influx or an emergence then predators had probably rapidly eliminated them. It occurs on the mainland opposite Ailsa and is not uncommon, but it has clearly not established itself on the island.

***Maniola jurtina* (Linn.)** **Meadow Brown**
Although common on the mainland, this butterfly is a very scarce visitor to Ailsa. A “brown” butterfly seen on 23 Jul 1989 may have been this species. No further records were noted until on 20 Jul 1992 when a female was caught and released following strong SW winds.
Gibson (1952) recorded this species as “common” in 1952 although there were no other records before then and none until 37 years later. It is clearly not common on Ailsa Craig and its occurrence is perhaps related to wind-drift. It has clearly never established itself despite its food plants - various grasses - being abundant.
Observers ; BZ, SQ.

***Coenonympha pamphilus* (Linn.)** **Small Heath**
Gibson (1952) alone recorded this species on Ailsa, stating that it was “fairly common on summit grass”. There are no other records. It is certainly common enough on the mainland in the right habitat but strangely absent from Ailsa Craig. If colonisation had occurred it was very temporary.

***Coenonympha tullia* (Müller)** **Large Heath**
This is a puzzling occurrence: Gibson (1952) recorded this scarce species as follows - “Five specimens recorded; all in region of Garry Loch, (c. 800ft)”. There are no other sightings of this species before or since. On mainland sites it is reported as feeding on various Cotton-grasses *Eriophorum* and Purple Moor Grass *Molinia caerulea*. Neither plant species is present on Ailsa, nor ever has been, nor is the butterfly generally common in Strathclyde. There are no specimen or photographic records of

this or the previous species from the island and both should be regarded as of dubious occurrence, hence are placed in square brackets.

***Aphantopus hyperantus* (Linn.) The Ringlet**

Two individuals were seen and photographed on 3 Sep 1996, near the south cottage on Ailsa. This was the first time the species had been recorded on the island. A specimen is preserved in Glasgow Museum [Reg. No DB.4071]. In early July 2003 another individual was recorded, again probably wind-drifted. This species has been seen on the Ayrshire coast opposite Ailsa and is also found on Arran.

Observers ; BZ, TPD & RAS

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